In the Claims

1-11. (Canceled)

12. (Currently Amended) A method for receiving a signal, comprising:

generating a polarized local signal based on receiver-side feedback;

receiving an ingress traffic signal comprising a first signal and a second signal, the first and second signals having the same wavelength, having different polarizations, and being modulated based on different data;

~~compensating the ingress traffic signal for polarization mode dispersion;~~

combining the ~~compensated~~ ingress traffic signal including the first signal and the second signal with the polarized local signal to generate a combined signal;

splitting the combined signal into a first split signal and second split signal using a polarization beam splitter;

detecting the first split signal; ~~and~~

detecting the second split signal; and

converting the detected first split signal and second split signal into intended data streams.

13. (Canceled)

14. (Original) The method of Claim 12, wherein the polarization is circular.

15. (Original) The method of Claim 12, wherein the first split signal comprises a first component of the received signal.

16. (Original) The method of Claim 12, wherein the second split signal comprises a second component of the received signal.

17. (Original) The method of Claim 12, wherein the ingress traffic signal is optical.

18. (Canceled)

19. (Currently Amended) The method of Claim [[18]] 12, wherein the polarization of a first component of the ingress traffic signal is aligned to an axis of the polarization beam splitter.

20-36. (Canceled)

37. (Currently Amended) A system for receiving a signal comprising:

a means for receiving a signal ~~and compensating the received signal for polarization mode dispersion~~ comprising a first signal and a second signal, the first and second signals having the same wavelength, having different polarizations, and being modulated based on different data;

a means for providing a local signal;

a means for controlling a polarization of the local signal to generate an appropriately polarized local signal;

a means for combining the polarized local signal and the ~~compensated~~ received signal;

a ~~means~~ polarization beam splitter for splitting the combined signal into a first split signal and a second split signal;

a means for detecting the first split signal;

a means for detecting the second split signal; ~~and~~

a means for converting the detected first split signal and second split signal into intended data streams; and

a means for generating feedback to modify the local signal.

38. (Canceled)

39. (Original) The system of Claim 37, wherein the signal is received by an automatic polarization controller.

40. (Original) The system of Claim 37, wherein the appropriate polarization of the local signal is circular.

41. (Original) The system of Claim 37, wherein the first split signal comprises a first component of the received signal.

42. (Original) The system of Claim 37, wherein the second split signal comprises an orthogonally polarized second component of the received signal.

43. (Original) The system of Claim 37, wherein the signal is optical.

44. (Original) The system of Claim 37, wherein the local signal is provided by a continuous wave laser.

45. (Original) The system of Claim 37, wherein the local signal means yields circularly polarized light.

46. (Original) The system of Claim 37, wherein the means to control polarization is a quarter wave plate.

47. (Original) The system of Claim 37, wherein the combiner means is a 3 decibel splitter.

48. (Original) The system of Claim 37, wherein the combiner means is a half mirror.

49. (Currently Amended) The method of Claim 37, wherein ~~the splitting means is a polarization beam splitter; and~~

a first component of the signal is aligned to an axis of the polarization beam splitter.

50. (Original) The system of Claim 37, wherein the detecting means is a photodiode.

51. (Canceled)

52. (Currently Amended) An optical receiver, comprising:

a local oscillator optically coupled to a quarter wave plate and operable to generate an optical signal;

the quarter wave plate optically coupled to a first beam splitter and operable to receive ~~an~~ the optical signal, circularly polarize the optical signal to generate a circularly polarized signal, and transmit the polarized signal to the first beam splitter;

~~a polarization mode dispersion compensator operable to receive an optical traffic signal and to compensate the optical traffic signal for polarization mode dispersion;~~

the first beam splitter optically coupled to a second polarization beam splitter and operable to receive ~~the compensated~~ an optical traffic signal, combine the ~~compensated~~ optical traffic signal with the circularly polarized signal to generate a combined signal, and transmit the combined signal to the second polarization beam splitter, wherein the optical traffic signal comprises a first signal and a second signal, the first and second signals having the same wavelength, having different polarizations, and being modulated based on different data;

the second polarization beam splitter optically coupled to a first photodiode and a second photodiode and operable to receive the combined signal, split the combined signal into a first split signal and a second split signal, and transmit the first split signal to the first photodiode and the second split signal to the second photodiode;

the first photodiode coupled to a decision circuit and operable to receive the first split signal, generate a first data signal based on the first split signal, and transmit the first data signal to the decision circuit;

the second photodiode coupled to a decision circuit and operable to receive the second split signal, generate a second data signal based on the second split signal, and transmit the second data signal to the decision circuit;

the decision circuit coupled to a feedback control module and operable to determine a desired optical signal generated by the local oscillator generate a control signal based on the desired optical signal, and transmit the control signal to the feedback control module;

the feedback control module coupled to the local oscillator and operable to generate an oscillator control signal based on the control signal; and

the local oscillator operable to receive the oscillator control signal and modify the optical signal based on the oscillator control signal.

53. (Canceled)

54. (Canceled)

55. (New) The method of Claim 12, further comprising compensating the ingress traffic signal for polarization mode dispersion.

56. (New) The system of Claim 37, further comprising a means for compensating the received signal for polarization mode dispersion.

57. (New) The optical receiver of Claim 52, further comprising a polarization mode dispersion compensator operable to receive an optical traffic signal and to compensate the optical traffic signal for polarization mode dispersion.